

INDEPENDENT BRAKING AND CONTROLLABILITY CONTROL METHOD AND SYSTEM FOR A VEHICLE WITH REGENERATIVE BRAKING

Abstract of Disclosure

A strategy is provided using feedback control algorithms to monitor and dynamically modify front and rear braking torque to maintain controllability in a vehicle that initially favors regenerative braking. Simple proportional-integral-derivative feedback controllers can be used. The controller can monitor wheel speed, lateral acceleration, yaw rate, and brake position to selectively activate non-regenerative braking independently for each individual wheel and regenerative braking in varying proportion based on at least one actual vehicle controllability value and at least one predetermined target value for controllability and optimization of energy recovery. Controllability factors can include predetermined longitudinal slip ratio, comparison of tire slip angle or yaw rate. For rear wheel drive configurations, the non-regenerative brakes can be applied to just one front axle wheel on the outside of a turn. For front wheel drive configurations, the non-regenerative brakes can be applied to just one rear axle wheel on the inside of a turn.

Figures